

In the Claims:

1. An energy-absorbing element capable of absorbing a portion of impact energy created during a collision, the energy-absorbing element comprising at least one layer of composite material comprising a mixture of mineral fibers and organic fibers.
2. An energy absorbing element as set forth in claim 1, wherein said composite material comprises a co-fiberized composite material.
3. An energy absorbing element as set forth in claim 2, wherein said mineral fibers comprise glass fibers.
4. An energy absorbing element as set forth in claim 3, where said organic fibers are formed from a material selected from the group consisting of polypropylene; polyphenylene sulfide; polyethylene terephthalate (PET); polyethylene; poly(α -olefin) copolymers; nylon 6; nylon 66; nylon 46; nylon 12; copolyamides; polycarbonate; copolymers of polycarbonate; polybutylene terephthalate (PBT); polypropylene terephthalate (PPT); polyphenylene ether (PPE); and blends thereof.
5. An energy absorbing element as set forth in claim 1, wherein said layer has a maximum thickness of from about 5 mm to about 50 mm.
6. An energy absorbing element as set forth in claim 5, wherein said layer has a density of from about 500 grams/m² to about 3000 grams/m².



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7. An energy absorbing element as set forth in claim 6, wherein said layer comprises a sheath having a generally U- or V-shape and is adapted to be positioned adjacent to a vehicle pillar.

8. An energy absorbing element as set forth in claim 1, wherein the composite material comprises mineral fibers in an amount from about 10 % to about 90 % by weight, based on the total weight of the composite material, and organic fibers in an amount from about 10 % to about 90 % by weight, based on the total weight of the composite material.

9. A method of manufacturing an energy absorbing sheath adapted to be positioned adjacent to a vehicle pillar, comprising:

providing a composite material substrate comprising a mixture of mineral fibers and organic fibers, and
forming the composite material substrate into the sheath.

10. The method according to claim 9, wherein the forming step includes placing the substrate between a pair of opposing dies that together form an inner cavity when closed corresponding to the desired shape of the sheath.

11. The method according to claim 9, wherein the substrate is formed into a substantially U- or V-shaped sheath.

12. The method of claim 9, wherein the sheath has a density of from about 500 grams/m² to about 3000 grams/m².

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13. A trim panel/sheath combination adapted to be secured to a vehicle pillar comprising:

a polymeric trim panel; and

a sheath formed of composite material comprising a mixture of mineral fibers and organic fibers.

14. A trim panel/sheath combination as set forth in claim 13, wherein said composite material comprises a co-fiberized composite material.

15. A trim panel/sheath combination as set forth in claim 14, wherein said mineral fibers comprise glass fibers.

16. A trim panel/sheath combination as set forth in claim 15, wherein said organic fibers are formed from a material selected from the group consisting of polypropylene; polyphenylene sulfide; polyethylene terephthalate (PET); polyethylene; poly(α -olefin) copolymers; nylon 6; nylon 66; nylon 46; nylon 12; copolyamides; polycarbonate, copolymers of polycarbonate; polybutylene terephthalate (PBT); polypropylene terephthalate (PPT); polyphenylene ether (PPE); and blends thereof.

17. A trim panel/sheath combination as set forth in claim 13, wherein said sheath has a maximum thickness of from about 5 mm to about 50 mm.

18. A trim panel/sheath combination as set forth in claim 17, wherein said sheath has a density of from about 500 grams/m² to about 3000 grams/m².

19. A trim panel/sheath combination as set forth in claim 18, wherein said

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sheath has a generally U- or V-shape and is adapted to be positioned between the pillar and the trim panel.

20. A trim panel/sheath combination as set forth in claim 13, wherein the composite material comprises mineral fibers in an amount from about 10 % to about 90 % by weight, based on the total weight of the composite material, and organic fibers in an amount from about 10 % to about 90 % by weight, based on the total weight of the composite material.

21. A trim panel/sheath combination as set forth in claim 13, wherein said trim panel has density of from about 0.5 grams/cm³ to about 1.5 grams/cm³.